

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. – 26. (canceled)

27. (new) A database processing method, comprising the steps of:
partitioning a relational database table into a set of partitions each
corresponding to one of multiple dimensions, wherein a key range partitioning or a
hash partitioning is further applied to each of said partitions;
determining columns of said database table to each of which a plurality of key
ranges are allocated, wherein said columns correspond to more than two of the
partitions and corresponding dimensional order, and each of said columns is
provided with said plurality of key ranges beforehand;
allocating one data storage area for each of said key ranges which are
assigned to each of said columns;
storing partition definition information defining how each of the data storage
areas is allocated to one of the key ranges into a dictionary;
in response to a first query, referencing to said dictionary, and searching the
data storage areas identified as the scope of a search, the identified data storage
areas being specified by key values included in the first query and corresponding to
a first column of said columns;

in response to a second query, referencing to said dictionary, and searching at least one of the data storage areas identified as the scope of a search, the identified data storage areas being specified by the key values included in the second query and corresponding to a second column of said columns different from the first column; and

searching said dictionary in response to a request of data insertion to the database table, inserting data to be inserted that is included in the insertion request into the data storage area identified as the scope of an insertion, the identified data storage area being specified by a key value included in the insertion request and corresponding to a column to which said plurality of key ranges were allocated.

28. (new) A database processing method, according to claim 27, further comprising the steps of:

in response to a request of data updating on the database table, searching said dictionary, and updating data stored in the data storage area identified as the scope of the data updating with the update data included in the update request, the identified data storage area being specified by a key value included in the update request and corresponding to a column to which said plurality of key ranges were allocated.

29. (new) A database processing method, according to claim 27, further comprising the steps of:

in response to a search request, referencing to said dictionary, and searching the data storage areas identified as the scope of a search, the identified data storage

areas being specified by key values as a search condition included in the search request and corresponding to the columns to each of which said plurality of key ranges were allocated.

30. (new) A database processing apparatus, comprising:

a dictionary for storing definition information that defines a relational database table;

a dictionary manager for identifying columns of the database table to each of which a key range partitioning is applied, wherein said columns consist of more than two of those contained in the database table, each of said columns corresponds to one of multiple dimensions and corresponding dimensional order, and each of said columns is provided with a plurality of key ranges beforehand, allocating one data storage area for each of said key ranges which are assigned to each of said columns, creating the definition information defining how each of the data storage areas is allocated to one of the key ranges, and storing the definition information into the dictionary;

a storage area specification component for referencing to said dictionary through the dictionary manager, and searching at least one of the data storage areas identified as the scope of a search, the identified data storage areas being specified by one or more given key values; and

a request execution controller for receiving a first query to obtain through the storage area specification component information of the data storage areas which are determined by key values specified by the first query and corresponding to a first column of said columns, receiving a second query to obtain through the storage area

specification component information of at least one of the data storage areas which are determined by key values specified by the second query and corresponding to a second column of said columns different from the first column, receiving a request of data insertion to the database table, and inserting data to be inserted that is included in the insertion request into the data storage area obtained through the storage area specification component, the obtained data storage area being determined by a key value included in the insertion request and corresponding to a column to which said plurality of key ranges were allocated.

31. (new) A database processing apparatus according to claim 30, wherein said request execution controller further receives a request of data updating on the database table, and updates data stored in the data storage area obtained through the storage area specification component with the update data included in the update request, the obtained data storage area being determined by a key value included in the update request and corresponding to a column to which said plurality of key ranges were allocated.

32. (new) A database processing apparatus according to claim 30, wherein said request execution controller further receives a search request, and searches the data storage areas obtained through the storage area specification component, the obtained data storage areas being determined by key values as a search condition included in the search request and corresponding to the columns to each of which said plurality of key ranges were allocated.

33. (new) A computer readable recording medium that stores a database processing program, said program, when executed by a computer, causing the computer to perform a method comprising the steps of:

identifying columns of a relational database table to each of which a key range partitioning is applied, wherein said columns consist of more than two of those contained in the database table, each of said columns corresponds to one of multiple dimensions and corresponding dimensional order, and each of said columns is provided with a plurality of key ranges beforehand;

allocating one data storage area for each of said key ranges which are assigned to each of said columns;

creating definition information defining how each of the data storage areas is allocated to one of the key ranges, and storing the definition information into a dictionary;

in response to a first query or a second query, referencing to said dictionary, and searching at least one of the data storage areas identified as the scope of a search, the identified data storage areas being specified by key values included in the first query or second query, respectively, and corresponding to a first column of said columns or a second column of said columns different from the first column, respectively; and

in response to a request of data insertion to the database table, searching said dictionary, and inserting data to be inserted that is included in the insertion request into the data storage area identified as the scope of an insertion, the identified data storage area being specified by a key value included in the insertion

request and corresponding to a column to which said plurality of key ranges were allocated.

34. (new) A computer readable recording medium according to claim 33, said program causing the computer to perform the method further comprising the steps of:

in response to a request of data updating on the database table, searching said dictionary, and updating data stored in the data storage area identified as the scope of the data updating with the update data included in the update request, the identified data storage area being specified by a key value included in the update request and corresponding to a column to which said plurality of key ranges were allocated.

35. (new) A computer readable recording medium according to claim 33, said program causing the computer to perform the method further comprising the steps of:

in response to a search request, referencing to said dictionary, and searching the data storage areas identified as the scope of a search, the identified data storage areas being specified by key values as a search condition included in the search request and corresponding to the columns to each of which said plurality of key ranges were allocated.